ABSTRACT OF THE DISCLOSURE

A gravity gradiometer is combined with a two-stage actively controlled isolation system. The gravity gradiometer and two stage isolation system may then be mounted within (or on) a mobile vehicle such as, for example, an aircraft. It has been recognised by the inventors herein that the accelerations imparted to an aircraft during normal operations can be separated through system design into two relatively distinct regimes within the frequency domain. The invention provides a first isolation mount, which forms part of the isolation system, to isolate accelerations (and resulting translations) falling within a first of the two frequency regimes. The second isolation mount, which is mounted to the first isolation mount, isolates accelerations falling within the second of the two frequency regimes. A gravity gradiometer can then be mounted to the second isolation mount. As a result of housing the gravity gradiometer within the nested isolation system (a combination of the first and second isolation mounts), the gravity gradiometer is substantially isolated from the accelerations experienced by the mobile vehicle. Consequently, gravity gradients measured by the gravity gradiometer are relatively noise free and provide heretofore-unobtainable accuracy.